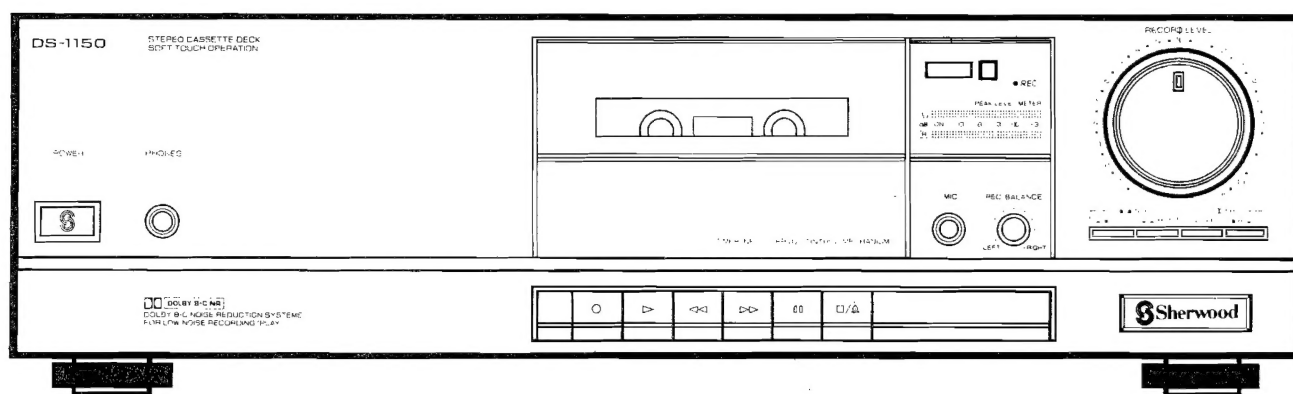


# SERVICE MANUAL

## DS-1150

### STEREO CASSETTE DECK



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 **Sherwood**

# Safety Precaution

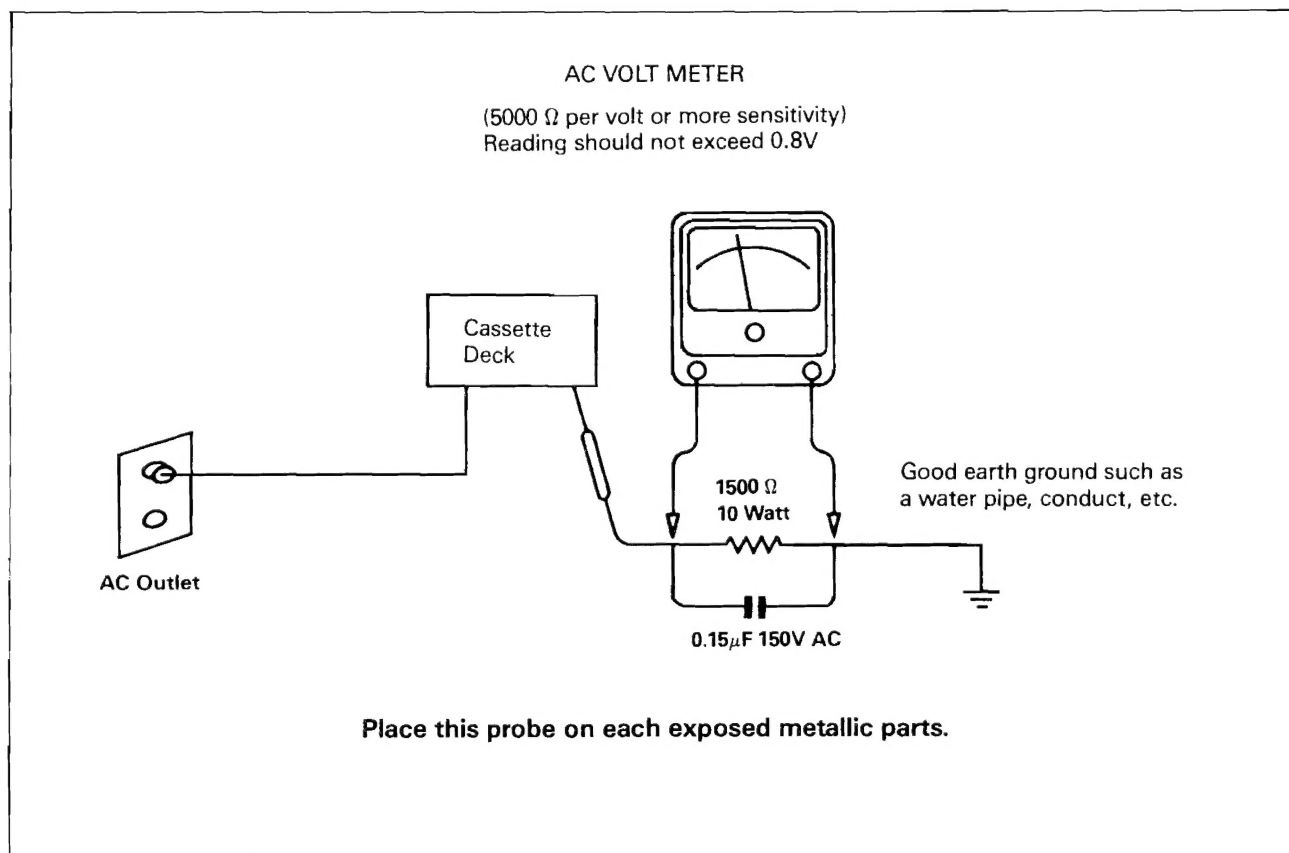
## WARNING

Service should not be attempted by anyone unfamiliar with the necessary precautions on this player. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this player have special characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by a  $\triangle$  in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.
2. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as

terminals, screwheads, metal overlays, etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet. (Do not use a line isolation transformer during this check.) Use an AC voltmeter having 5000  $\Omega$  per volt or more sensitivity in the following manner:

Connect a 1500  $\Omega$  10 watt resistor paralleled by a 0.15 $\mu$ F, 150V AC capacitor, between a known good earth ground (water pipe, conduct, etc) and the exposed metallic parts, one at a time. Measure The AC voltage across the combination of 1500  $\Omega$  resistor and 0.15 $\mu$ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3volts RMS. This corresponds to 0.2mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



# Specifications

|   |  |
|---|--|
| Type;   | Soft touch front loading stereo cassette deck with<br>Dolby B/C NR system  |
| Track system  | 4 track, 2 channel stereo recording/playback   |
| Recording system  | AC bias system(Bias frequency: 85kHz)  |
| Erasing system  | AC system  |
| Tape speed  | 1-7/8 ips (4.76cm/s)   |
| Heads;  | Hard permalloy Hyperbolic recording/playback head×1<br>Double gap erasing head×1   |
| Motor   | Electronic governor controlled DC motor  |
| Fast winding Time   | Approx. 120 seconds with C-60 cassette tape  |
| Frequency Response;<br>at -20dB Rec/PB<br>Dolby NR off<br>0 dB Rec/PB | <ul style="list-style-type: none"> <li>• Normal : 35-14,500Hz at ±3dB</li> <li>• CrO<sub>2</sub> : 35-15,000Hz at ±3dB</li> <li>• Metal : 35-16,000Hz at ±3dB</li> </ul> Metal tape 40-12,000Hz at ±3dB  |
| Signal to noise<br>ratio at Rec/PB                                    | <ul style="list-style-type: none"> <li>• Dolby NR off 53dB at Normal tape<br/>(Weighted) 55dB at CrO<sub>2</sub> tape<br/>55dB at Metal tape</li> <li>• Dolby B NR 62dB at Normal tape<br/>(weighted) 64dB at CrO<sub>2</sub> tape<br/>64dB at dB Metal tape</li> <li>• Dolby C NR 72dB at Normal tape<br/>(weighted) 74dB at CrO<sub>2</sub> tape<br/>74dB at Metal tape</li> </ul> |
| Third harmonic distortion   | Less than 1.0% at 1kHz 0dB Rec/PB  |
| Input sensitivity/impedance   | Line 70mV/47kΩ   |
| Output level/impedance;   | Line 500mV/1.5kΩ<br>Headphone 450mV at load 600Ω   |
| Built in features;  | <ul style="list-style-type: none"> <li>• Dolby B/C NR system</li> <li>• LED peak level display: 5 LEDs×2</li> <li>• 2-push in type tape selector: Norm, CrO<sub>2</sub>, Metal</li> </ul>  |
| Power consumption   | 12 watts   |
| Power requirements;   | (A): 120V 50Hz for USA/Canadian version<br>(B): 120/220V 60/50Hz for multi-voltage version<br>(C): 220V 50Hz for general European version<br>(D): 220V 50Hz for west Germanian & Italian version<br>(E): 240V 50Hz for Britigh & Australian version<br>(F): 220V 50Hz for Swiss & Scandinavian version   |
| Dimensions;   | 440(W)×118(H)×225(D) mm<br>17.3(W)×4.6(H)×8.9(D) inches  |
| Weight (Net)  | 3.3kg (7.3 lbs)  |

**NOTE:** \*Dolby noise reduction manufactured under license from Dolby Licensing Corporation.  
Specifications and design subject to change without notice for improvements.

# Electrical Adjustment & Procedures

## 1. Before Measurements and Adjustment

The following general conditions apply to the electrical measurements and adjustments unless especially stated otherwise.

- Dolby NR push switch off.
- Volume control: Recording level VR201L/R max.
- Valance volume VR601 center.
- Use 500mV (200nwb/m) for 0dB as the standard level of the unit.
- Test tape
  - TCC-153 \_\_\_\_\_ Azimuth(10kHz, -20dB)
  - TCC-112 \_\_\_\_\_ Tape speed(3.15kHz, -10dB)
  - TCC-130 \_\_\_\_\_ Playback level (Dolby ref. tape 400Hz, 0dB)
  - TCC-184 \_\_\_\_\_ Playback freq. response
- Reference Tape
  - Normal \_\_\_\_\_ TDK AD-60
  - CrO<sub>2</sub> \_\_\_\_\_ TDK SA-60
  - Metal \_\_\_\_\_ TDK MAX-60

## Playback Section

| Adjustments                 | Test tape                          | Mode | Apply Signal to | Measure on  | Read on                                   | Adjust with                         | Adjust to   |
|-----------------------------|------------------------------------|------|-----------------|-------------|---|-------------------------------------|---|
| Head Azimuth                | TCC-153<br>10 kHz<br>(A.BEX)       | Play |                 | Line output | ACmV-meter<br>Oscilloscope                | Head adjusting screw<br>(left side) | Max. <sup>*a</sup><br>• Lissajous' figure become a straight line with an angle 45 degrees |
| Tape Speed                  | TCC-112<br>3.15kHz<br>-10dB(A.BEX) | Play |                 | Line output | Wow and Flutter Meter & Frequency Counter | The inner VR Motor                  | <sup>*b</sup><br>Approx. center position<br>3.15kHz ± 15Hz                                |
| Playback Level              | TCC-130<br>400Hz 0dB<br>(A.BEX)    | Play |                 | Line output | ACmV-meter<br>Oscilloscope                | VR101L/R                            | 500mV   |
| Playback frequency response | TCC-184<br>(A.BEX)                 | Play |                 | Line output | ACmV-meter<br>Oscilloscope                |                                     | See graph Fig.2<br>freq. response   |

## Recording section

| Adjustments            | Test tape              | Mode      | Apply signal to | Measure on                      | Read on                    | Adjust with | Adjust to                    |
|------------------------|------------------------|-----------|-----------------|---------------------------------|----------------------------|-------------|------------------------------|
| Bias OSC Frequency     | MAX-60<br>(TDK)        | Rec/Pause |                 | White color lead wire of CNT501 | Frequency Counter          | OSC         | 85kHz, red colour            |
| 85kHz trap suppression | MAX-60<br>(TDK)        | Rec/Pause |                 | TP3L/R                          | ACmV-meter<br>Oscilloscope | L501L/R     | Minimize the reading on ACVM |
| Target value Bias      | Metal MAX-60           | Rec/Pause |                 | TP1L/R                          | ACmV-meter<br>Oscilloscope | VR503       | 7.0mV                        |
|                        | CrO <sub>2</sub> SA-60 |           |                 |                                 |                            | VR502       | 5.5mV                        |
|                        | Normal AD-60           |           |                 |                                 |                            | VR501L/R    | 3.3mV                        |



| Adjustments       | Test tape      | Mode           | Apply Signal to   | Measure on    | Read on                    | Adjust with   | Adjust to   |
|-------------------|----------------|----------------|---|---------------|----------------------------|---|---|
| Recording Level   | AD-60 (TDK)    | Source         | 400Hz to Line   | Line output   | ACmV-meter<br>Oscilloscope | LF generator<br>VR201L/R  | 500mV *c  |
|                   |                | Tape Rec/Pause |   |               |                            |   |   |
| Bias              |                | Tape Rec/Pause | 400Hz to Line<br>4kHz-6.3kHz<br>10kHz-12kHz<br>14kHz-16kHz to line in | Line output   | ACmV-meter                 | See target value bias<br>Record/Playback a number of frequency with the same input voltage. | See Fig. 3 if it necessary repeat bias adjust. *d |
| Level meter       | Arbitrary tape | Source         | 400Hz to Line in  | 0 Level Point | ACmV-meter<br>Oscilloscope | VR201L/R  | 0 mark  |
| 19 kHz Supression | Arbitrary tape | Rec/Pause      | 400Hz to Line in<br>19kHz to Line in                                  | Line output   |                            | LF generator<br>LPF251L/R   | 500mV<br>Minimize the reading on ACVM             |

Note:

- \*a. Prior to any measurement or adjustment with the tape running heads and tape guides should be degaussed and cleaned. Confer see Figure Electrical Adjustment Point
- \*b. The max permissible speed variation  $\pm 1\text{dB}$ . Moreover the wow and flutter can be read. This value should not exceed 0.1%.
- \*c. The voltage on line out should read  $500\text{mV} \pm 20\text{mV}$ . If this is not the case reduce the LF signal(bias disabled by as many dB's as the reading was too low or too high means of VR101L/R.
- \*d. When the channel is adjusted this may slightly affect the adjustment of the other channel. If the adjustment is correct the frequency response curve will be similar in Fig. 4 distortion  $\leq 3\%$

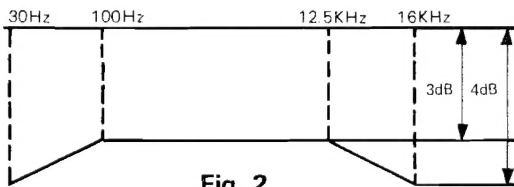


Fig. 2

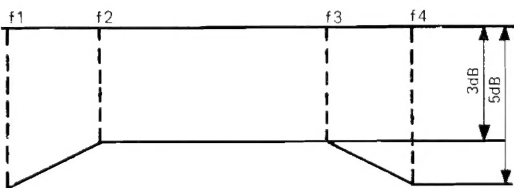


Fig. 3

|                  | f1   | f2    | f3      | f4      |
|------------------|------|-------|---------|---------|
| Metal            | 30Hz | 100Hz | 12.5kHz | 15.5kHz |
| CrO <sub>2</sub> | 30Hz | 100Hz | 12.5kHz | 15.0kHz |
| Normal           | 30Hz | 100Hz | 12.5kHz | 14.5kHz |

## Azimuth Adjustment Point

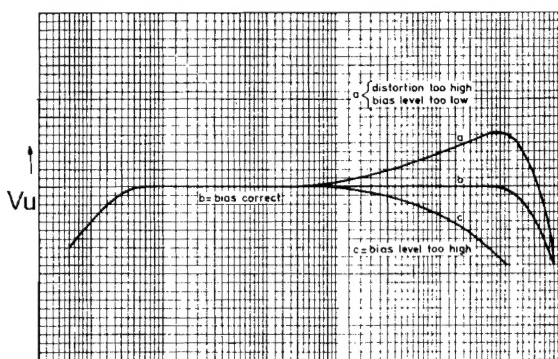
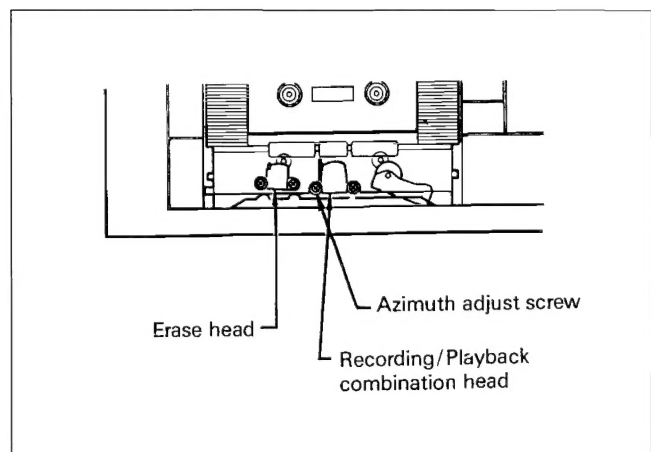
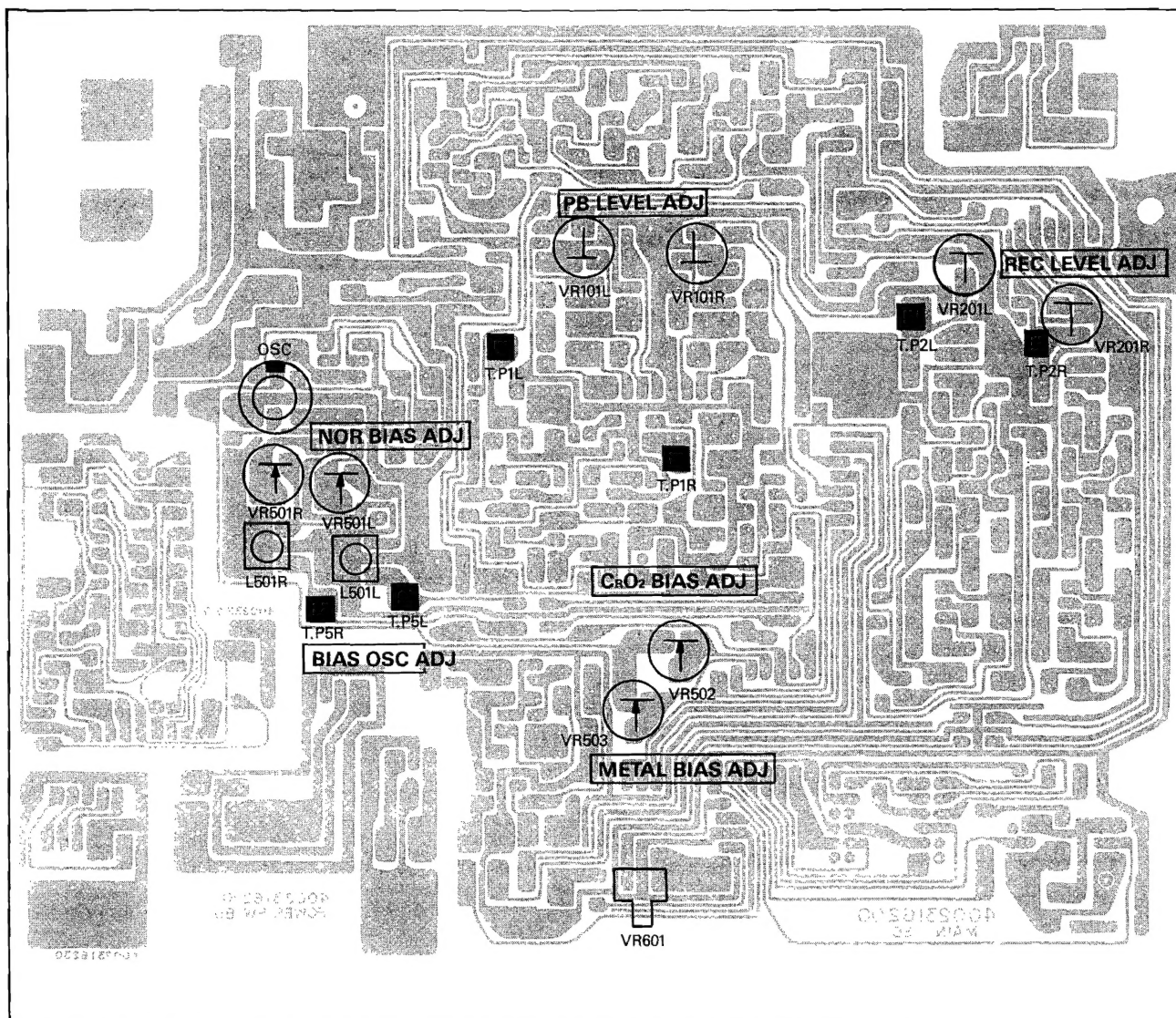
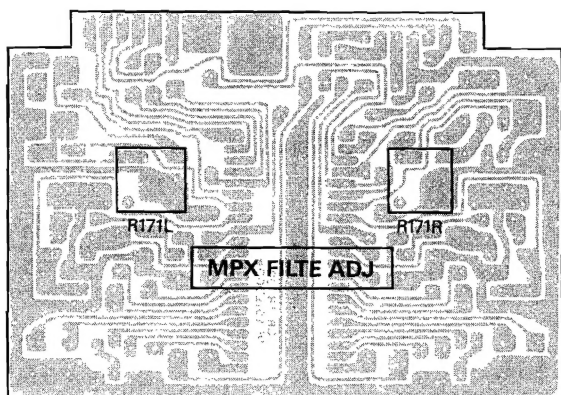


Fig. 4

# ADJUSTMENT POINT



MAIN BOARD 4002316200



4002316300  
DOLBY BOARD

# Electrical Parts List

PRODUCT SAFETY NOTICE: Products marked with  $\triangle$  have special characteristics important to safety. If you replace any of these components, carefully read the product safety notice of this manual. Don't degraded the safety of the product through improper servicing.

Resistors & Capacitors tolerance, D:  $\pm 5\%$ , K:  $\pm 10\%$ , M:  $\pm 20\%$ , Z:  $+80\% -20\%$ .

| Ref. No                      | Part No.   | Description             | Position | Remark |
|------------------------------|------------|-------------------------|----------|--------|
| <b>Main Board 4002316200</b> |            |                         |          |        |
| <b>• Capacitors</b>          |            |                         |          |        |
| C101L/R                      | 3679183120 | Mylar 0.018 $\mu$ F     | 100V J   | A1/B1  |
| C102L/R                      | 3679103120 | Mylar 0.01 $\mu$ F      | 100V J   | A1/B1  |
| C103L/R                      | 3579221130 | Ceramic 220pF           | 50V J    | A1/B1  |
| C104L/R                      | 3479210971 | Electric SA 1 $\mu$ F   | 50V M    | A1/B1  |
| C105L/R                      | 3579471130 | Ceramic 470pF           | 50V J    | A1/B1  |
| C106L/R                      | 3479247971 | Electric SA 4.7 $\mu$ F | 50V M    | B1     |
| C107L/R                      | 3479247031 | Electric SA 47 $\mu$ F  | 16V M    | B1     |
| C108                         | 3479247031 | Electric SA 47 $\mu$ F  | 16V M    | B1     |
| C201L/R                      | 3679683120 | Mylar 0.068 $\mu$ F     | 100V J   | B1     |
| C202L/R                      | 3479210971 | Electric SA 1 $\mu$ F   | 50V M    | B1     |
| C203L/R                      | 3479210971 | Electric SA 1 $\mu$ F   | 50V M    | B1     |
| C204L/R                      | 3479210971 | Electric SA 1 $\mu$ F   | 50V M    | B1     |
| C205L/R                      | 3679183120 | Mylar 0.018 $\mu$ F     | 100V J   | B1     |
| C206L/R                      | 3679223120 | Mylar 0.022 $\mu$ F     | 100V J   | B2     |
| C207L/R                      | 3479210061 | Electric SA 10 $\mu$ F  | 35V M    | B1     |
| C208L/R                      | 3479233031 | Electric SA 33 $\mu$ F  | 16V M    | B1     |
| C209L/R                      | 3679333120 | Mylar 0.033 $\mu$ F     | 100V J   | B2     |
| C210L/R                      | 3679563120 | Mylar 0.056 $\mu$ F     | 100V J   | B2     |
| C211L/R                      | 3679203120 | Mylar 0.02 $\mu$ F      | 100V J   | B2     |
| C212                         | 3479210131 | Electric SA 100 $\mu$ F | 16V J    | B2     |
| C213/C214                    | 3509104530 | Ceramic 0.1 $\mu$ F     | 50V Z    | B1     |
| C215                         | 3479210131 | Electric SA 100 $\mu$ F | 16V M    | B1     |
| C301L/R                      | 3479210061 | Electric SA 10 $\mu$ F  | 35V M    | A1/B1  |
| C302L/R                      | 3479222031 | Electric SA 22 $\mu$ F  | 16V M    | B1     |
| C401                         | 3479233041 | Electric SA 33 $\mu$ F  | 25V M    | A1     |
| C402                         | 3409247139 | Electric SA 470 $\mu$ F | 16V M    | A1     |
| C403                         | 3409247169 | Electric SA 470 $\mu$ F | 35V M    | A1     |
| C404-C406                    | 3509104530 | Ceramic 0.1 $\mu$ F     | 50V Z    | A1     |
| C501L/R                      | 3509471130 | Ceramic 470pF           | 50V J    | A1     |
| C502                         | 3609332130 | Mylar 0.0033 $\mu$ F    | 160V J   | A1     |
| C503/C504                    | 3679562120 | Mylar 0.0056 $\mu$ F    | 100V J   | A1     |
| C505                         | 3679223120 | Mylar 0.022 $\mu$ F     | 100V J   | A1     |
| C506                         | 3679103120 | Mylar 0.01 $\mu$ F      | 100V J   | A1     |
| C507                         | 3479210061 | Electric SA 10 $\mu$ F  | 35V M    | A1     |
| C508-C510                    | .          | Not used !              |          |        |
| C511                         | 3509104530 | Ceramic 0.1 $\mu$ F     | 50V Z    | A1     |
| C601                         | 3479222041 | Electric SA 22 $\mu$ F  | 25V M    | A2     |
| C602/C603                    | 3479210971 | Electric SA 1 $\mu$ F   | 50V M    | A2     |
| C604                         | 3479233031 | Electric SA 33 $\mu$ F  | 16V M    | A2     |
| C605                         | 3579331130 | Ceramic 330pF           | 50V J    | A2     |
| C701                         | 3479247031 | Electric SA 47 $\mu$ F  | 16V M    | B2     |
| C702/C703                    | 3479210061 | Electric SA 10 $\mu$ F  | 35V M    | B1/B2  |
| C801L/R                      | 3479222971 | Electric SA 2.2 $\mu$ F | 50V M    | A2     |

| Ref. No            | Part No.   | Description               | Position | Remark |
|--------------------|------------|---------------------------|----------|--------|
| C802L/R            | 3479210061 | Electric SA 10 $\mu$ F    | 35V M    | A2/A1  |
| C803               | 3579104534 | Ceramic 0.1 $\mu$ F       | 50V Z    | A1     |
| <b>• Coils</b>     |            |                           |          |        |
| L201L/R            | 2648601310 | Inductor 4.5mH            |          | B2     |
| L202L/R            | 2648601700 | Inductor 5.5mH            |          | B2     |
| L501L/R            | 2658501100 | REC Trap, 85kHz           |          | A2     |
| OSC                | 2638601140 | Bias OSC, 85kHz           |          | A1     |
| <b>• Diodes</b>    |            |                           |          |        |
| D101/D102          | 2058306101 | 1N4148                    |          | B1     |
| D103               | 2058599109 | Zener, UZ 15BH            |          | B1     |
| D401-D404          | 2258106100 | 1N4002, Rectafier         |          | A1     |
| D701               | 2058599100 | Zener, UZ 3.3B            |          | A2     |
| D702/D703          | 2058306101 | 1N4148                    |          | B2     |
| D801               | 2308220109 | LED, SLR 54URC            |          | A2     |
| D802L/R            | 2308220127 | LED, SLR 34URC3           |          | A1     |
| D803L/R            | 2308221105 | LED, SLR 34DC3            |          | A1     |
| D804L/R            | 2308221105 | LED, SLR 34DC3            |          | A2     |
| D805L/R            | 2308221105 | LED, SLR 34DC3            |          | A2     |
| D806L/R            | 2308220127 | LED, SLR 34URC3           |          | A2     |
| D807L/R            | 2308220127 | LED, SLR 34URC3           |          | A2     |
| <b>• ICs</b>       |            |                           |          |        |
| IC101L/R           | 2168006104 | KIA8125S                  |          | B1     |
| IC401L/R           | 2168601106 | GD7818                    |          | A1     |
| IC801L/R           | 2168022114 | BA6124                    |          | A2     |
| <b>• Resistors</b> |            |                           |          |        |
| VR101L/R           | 3248322320 | Semi 22k $\Omega$ (B)     |          | A1/B1  |
| VR201L/R           | 3248310320 | Semi 10k $\Omega$ (B)     |          | B1     |
| VR501L/R           | 3248310420 | Semi 10k $\Omega$ (B)     |          | A1     |
| VR502              | 3248333320 | Semi 33k $\Omega$ (B)     |          | B2     |
| VR503              | 3248310220 | Semi 1k $\Omega$ (B)      |          | B2     |
| R110               | 3069681970 | Carbon Film 680 $\Omega$  | 1/5W J   | B1     |
| R111L/R            | 3069472970 | Carbon Film 4.7k $\Omega$ | 1/5W J   | A1/B1  |
| R112L/R            | 3069334970 | Carbon Film 330k $\Omega$ | 1/5W J   | A1/B1  |
| R113L/R            | 3069101970 | Carbon Film 100 $\Omega$  | 1/5W J   | A1/B1  |
| R114L/R            | 3069104970 | Carbon Film 100k $\Omega$ | 1/5W J   | B1     |
| R115L/R            | 3069332970 | Carbon Film 3.3k $\Omega$ | 1/5W J   | B1     |
| R116L/R            | 3069221970 | Carbon Film 220 $\Omega$  | 1/5W J   | B1     |
| R117L/R            | 3069104970 | Carbon Film 100k $\Omega$ | 1/5W J   | A1/B1  |
| R118L/R            | 3069102970 | Carbon Film 1K $\Omega$   | 1/5W J   | B1     |
| R119L/R            | 3069153970 | Carbon Film 15k $\Omega$  | 1/5W J   | A1/B1  |
| R211L/R            | 3069152970 | Carbon Film 1.5k $\Omega$ | 1/5W J   | B1     |

| Ref. No   | Part No.   | Description              | Position | Remark |
|-----------|------------|--------------------------|----------|--------|
| R212L/R   | 3069682970 | Carbon Film 6.8kΩ 1/5W J | B1       |        |
| R213L/R   |            | Not used !               |          |        |
| R214L/R   | 3069102970 | Carbon Film 1kΩ 1/5W J   | B1       |        |
| R215L/R   | 3069222970 | Carbon Film 2.2kΩ 1/5W J | B1       |        |
| R216L/R   | 3069333970 | Carbon Film 39kΩ 1/5W J  | B1       |        |
| R217L/R   | 3069224970 | Carbon Film 220kΩ 1/5W J | B1       |        |
| R218L/R   | 3069822970 | Carbon Film 8.2kΩ 1/5W J | B1       |        |
| R219L/R   | 3069151970 | Carbon Film 150Ω 1/5W J  | B1       |        |
| R220L/R   | 3069392970 | Carbon Film 3.9kΩ 1/5W J | B2       |        |
| R221L/R   | 3069332970 | Carbon Film 3.3kΩ 1/5W J | B2       |        |
| R222L/R   | 3069302970 | Carbon Film 3kΩ 1/5W J   | B2       |        |
| R223L/R   | 3069152970 | Carbon Film 1.5kΩ 1/5W J | B2       |        |
| R224L/R   | 3069122970 | Carbon Film 1.2kΩ 1/5W J | B1       |        |
| R225L/R   | 3069132970 | Carbon Film 1.3kΩ 1/5W J | B1       |        |
| R226L/R   | 3069101970 | Carbon Film 100Ω 1/5W J  | B1       |        |
| R227L/R   | 3069333970 | Carbon Film 33kΩ 1/5W J  | B2       |        |
| R228L/R   | 3069101970 | Carbon Film 100Ω 1/5W J  | B2       |        |
| R311L/R   | 3069104970 | Carbon Film 100kΩ 1/5W J | B1       |        |
| R312L/R   | 3069101970 | Carbon Film 100Ω 1/5W J  | B1       |        |
| R313L/R   | 3069681970 | Carbon Film 680Ω 1/5W J  | A1/B1    |        |
| R314L/R   | 3069682970 | Carbon Film 6.8kΩ 1/5W J | B1       |        |
| R315L/R   | 3069473970 | Carbon Film 47kΩ 1/5W J  | B1       |        |
| R316L/R   | 3069122970 | Carbon Film 1.2kΩ 1/5W J | B1       |        |
| R317      | 3069152970 | Carbon Film 1.5kΩ 1/5W J | B1       |        |
| R318L/R   | 3069332970 | Carbon Film 3.3kΩ 1/5W J | B1       |        |
| R401      | 3069684970 | Carbon Film 680kΩ 1/5W J | A1       |        |
| R402      | 3069273970 | Carbon Film 27kΩ 1/5W J  | A1       |        |
| R403/R404 | 3069473970 | Carbon Film 47kΩ 1/5W J  | A1       |        |
| R405      | 3069223970 | Carbon Film 22kΩ 1/5W J  | A1       |        |
| R406      | 3069103970 | Carbon Film 10kΩ 1/5W J  | A1       |        |
| R407      | 3069123970 | Carbon Film 12kΩ 1/5W J  | A1       |        |
| R511      | 3069100970 | Carbon Film 10Ω 1/5W J   | A1       |        |
| R512/R513 | 3069333970 | Carbon Film 33kΩ 1/5W J  | A1       |        |
| R514      | 3009621273 | Carbon Film 620Ω 1/5W J  | B2       |        |
| R515L/R   | 3069562970 | Carbon Film 5.6kΩ 1/5W J | A2       |        |
| R611      | 3069392970 | Carbon Film 3.9kΩ 1/5W J | A2       |        |
| R612/R614 | 3069224970 | Carbon Film 220kΩ 1/5W J | A2       |        |
| R613      | 3069562970 | Carbon Film 5.6kΩ 1/5W J | A2       |        |
| R615      | 3069471970 | Carbon Film 470Ω 1/5W J  | A2       |        |
| R616      | 3069123970 | Carbon Film 12kΩ 1/5W J  | A2       |        |
| R617      | 3069333970 | Carbon Film 33kΩ 1/5W J  | A2       |        |
| R618      | 3069102970 | Carbon Film 1kΩ 1/5W J   | A2       |        |
| R619      | 3069221970 | Carbon Film 220Ω 1/5W J  | A2       |        |
| R620      | 3069123970 | Carbon Film 12kΩ 1/5W J  | A2       |        |
| R621      | 3069122970 | Carbon Film 1.2kΩ 1/5W J | A2       |        |
| R711L/R   | 3069681970 | Carbon Film 680Ω 1/5W J  | A1/B1    |        |
| R712L/R   | 3069122970 | Carbon Film 1.2kΩ 1/5W J | A1/B1    |        |
| R713      | 3069101970 | Carbon Film 100Ω 1/5W J  | A2       |        |
| R714      | 3069223970 | Carbon Film 22kΩ 1/5W J  | A2       |        |
| R715      | 3069273970 | Carbon Film 27kΩ 1/5W J  | A2       |        |
| R716      | 3069103970 | Carbon Film 10kΩ 1/5W J  | B2       |        |
| R717/R718 | 3069223970 | Carbon Film 22kΩ 1/5W J  | B2       |        |
| R719/R720 | 3069223970 | Carbon Film 22kΩ 1/5W J  | B1       |        |
| R721      | 3069102970 | Carbon Film 1kΩ 1/5W J   | B1       |        |
| R722      | 3069223970 | Carbon Film 22kΩ 1/5W J  | B2       |        |
| R723      | 3069682970 | Carbon Film 6.8kΩ 1/5W J | B2       |        |
| R724      | 3069103970 | Carbon Film 10kΩ 1/5W J  | B2       |        |
| R725      | 3069122970 | Carbon Film 1.2kΩ 1/5W J | B2       |        |
| R811L/R   | 3069203970 | Carbon Film 20kΩ 1/5W J  | A2       |        |

| Ref. No | Part No.   | Description              | Position | Remark |
|---------|------------|--------------------------|----------|--------|
| R812L/R | 3069563970 | Carbon Film 56kΩ 1/5W J  | A2       |        |
| R813L/R | 3069103970 | Carbon Film 10kΩ 1/5W J  | A2/A1    |        |
| R814    | 3069561970 | Carbon Film 560Ω 1/5W J  | A1       |        |
| R815    | 3069122970 | Carbon Film 1.2kΩ 1/5W J | A2       |        |

#### • Transistors

|           |            |              |       |  |
|-----------|------------|--------------|-------|--|
| Q101L/R   | 2208622106 | NPN DTC114YS | A1/B1 |  |
| Q102L/R   | 2008610162 | NPN 2SD1302S | A1/B1 |  |
| Q162      | 2208622106 | NPN DTC114YS | A1    |  |
| Q201L/R   | 2208622106 | NPN DTC114YS | B1    |  |
| Q202L/R   | 2208622106 | NPN DTC114YS | B1    |  |
| Q301L/R   | 2208606104 | NPN KTC1815Y | A1/B1 |  |
| Q302L/R   | 2008610162 | NPN 2SD1302S | B1    |  |
| Q401/Q402 | 2208622107 | NPN 2SC1740  | A1    |  |
| Q403      | 2008209101 | NPN MPSA55   | A1    |  |
| Q501/Q502 | 2008609101 | PNP MPSA05   | A1    |  |
| Q601/Q602 | 2208622107 | NPN 2SC1740  | A2    |  |
| Q701L/R   | 2208606104 | NPN KTC1815Y | A1    |  |
| Q702L/R   | 2208606104 | NPN KTC1815Y | A1/B1 |  |
| Q703      | 2008209101 | NPN MPSA55   | A2    |  |
| Q704      | 2208606104 | NPN KTC1815Y | B2    |  |

### Dolby Board 4002316300

#### • Capacitors

|         |            |                          |    |  |
|---------|------------|--------------------------|----|--|
| C171L/R | 3479222871 | Electric SA 0.22μF 50V M | C1 |  |
| C172L/R | 3679683120 | Mylar 0.068μF 100V J     | C1 |  |
| C173L/R | 3679473120 | Mylar 0.047μF 100V J     | C1 |  |
| C174L/R | 3679103120 | Mylar 0.01μF 100V J      | C1 |  |
| C175L/R | 3679682120 | Mylar 0.0068μF 100V J    | C1 |  |
| C176L/R | 3479210061 | Electric SA 10μF 35V M   | C1 |  |
| C177L/R | 3479210121 | Electric SA 100μF 10V M  | C1 |  |
| C178L/R | 3679153120 | Mylar 0.015μF 100V J     | C1 |  |
| C179L/R | 3479215871 | Electric SA 0.15μF 50V M | C1 |  |
| C180L/R | 3479247871 | Electric SA 0.47μF 50V M | C1 |  |
| C181L/R | 3679472120 | Mylar 0.0047μF 100V J    | C1 |  |
| C182L/R | 3679332120 | Mylar 0.0033μF 100V J    | C1 |  |
| C183L/R | 3579561130 | Ceramic 560pF 50V J      | C1 |  |
| C184L/R | 3679472120 | Mylar 0.0047μF 100V J    | C1 |  |
| C185L/R | 3479222971 | Electric SA 2.2ΩF 50V M  | C1 |  |
| C186L/R | 3479247971 | Electric SA 4.7ΩF 50V M  | C1 |  |
| C187    | 3479210061 | Electric SA 10ΩF 35V M   | C1 |  |
| C188L/R | 3479210061 | Electric SA 10ΩF 35V M   | C1 |  |
| C189L/R | 3479247971 | Electric SA 4.7ΩF 50V M  | C1 |  |
| C190L/R | 3479210061 | Electric SA 10ΩF 35V M   | C1 |  |
| C191L/R | 3579102530 | Ceramic 1000pF 50V J     | C1 |  |

#### • Coils

|         |            |               |    |  |
|---------|------------|---------------|----|--|
| L170L/R | 2648601710 | Inductor 21mH | C1 |  |
| L171L/R | 2658301140 | MPX Filter    | C1 |  |

#### • IC

|       |            |                  |    |  |
|-------|------------|------------------|----|--|
| IC201 | 2168000108 | Dolby IC CX20187 | C1 |  |
|-------|------------|------------------|----|--|

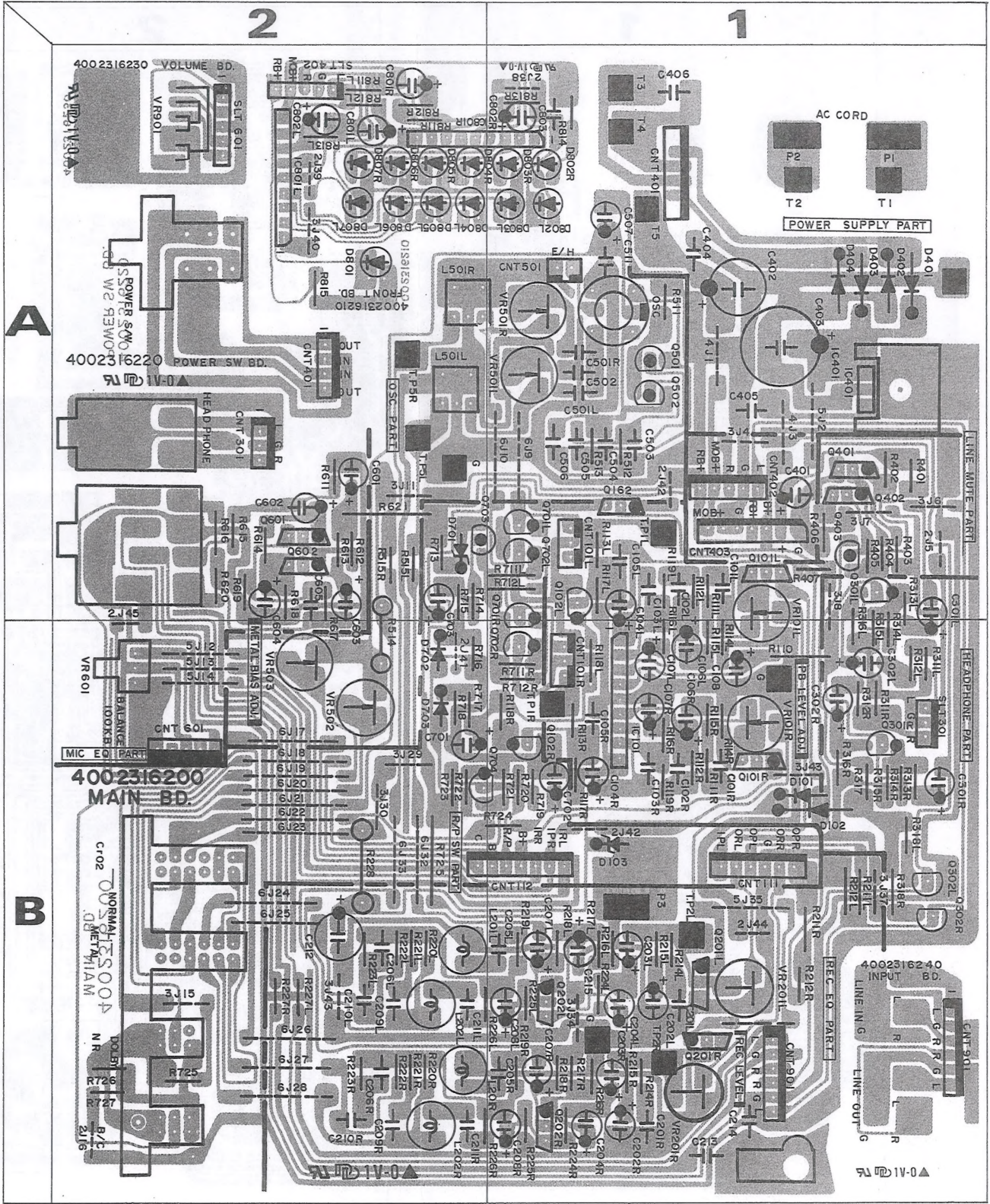


| Ref. No               | Part No.   | Description         | Position  | Remark |
|-----------------------|------------|---------------------|-----------|--------|
| • Resistors           |            |                     |           |        |
| R171L/R               | 3069681970 | Carbon Film 680Ω    | 1/5W J C1 |        |
| R172L/R               | 3069682970 | Carbon Film 6.8kΩ   | 1/5W J C1 |        |
| R173L/R               | 3069471970 | Carbon Film 470Ω    | 1/5W J C1 |        |
| R174L/R               | 3069562970 | Carbon Film 5.6kΩ   | 1/5W J C1 |        |
| R175L/R               | 3069272970 | Carbon Film 2.7kΩ   | 1/5W J C1 |        |
| R176L/R               | 3069752970 | Carbon Film 7.5kΩ   | 1/5W J C1 |        |
| R177L/R               | 3069682970 | Carbon Film 6.8kΩ   | 1/5W J C1 |        |
| R178L/R               | 3069332970 | Carbon Film 3.3kΩ   | 1/5W J C1 |        |
| R179                  | 3069104970 | Carbon Film 100kΩ   | 1/5W J C1 |        |
| R180L/R               | 3069101970 | Carbon Film 100Ω    | 1/5W J C1 |        |
| • Others (Connectors) |            |                     |           |        |
| CNT101 L/R            | 4428517610 | Plug 3p             | A1        |        |
| CNT111                | 4428524810 | Plug 6p, Angle      | B1        |        |
| CNT112                | 4428525180 | Plug 7p, Angle      | B2        |        |
| CNT301                | 4428522310 | Wire trap 3p        | A2        |        |
| CNT401                | 4428522410 | Wire trap 4p        | A2        |        |
| CNT402                | 4428522510 | Wire trap 5p        | A1        |        |
| CNT403                | 4428502070 | Plug 7p, from Mecha | A1        |        |
| CNT501                | 4428517510 | Plug 2p, from Mecha | A1        |        |
| CNT601                | 4428522510 | Wire trap, 5p       | B2        |        |

Top & Bottom View of P.C Boards

MAIN P.C. BOARD 4002316200

(TOP VIEW)

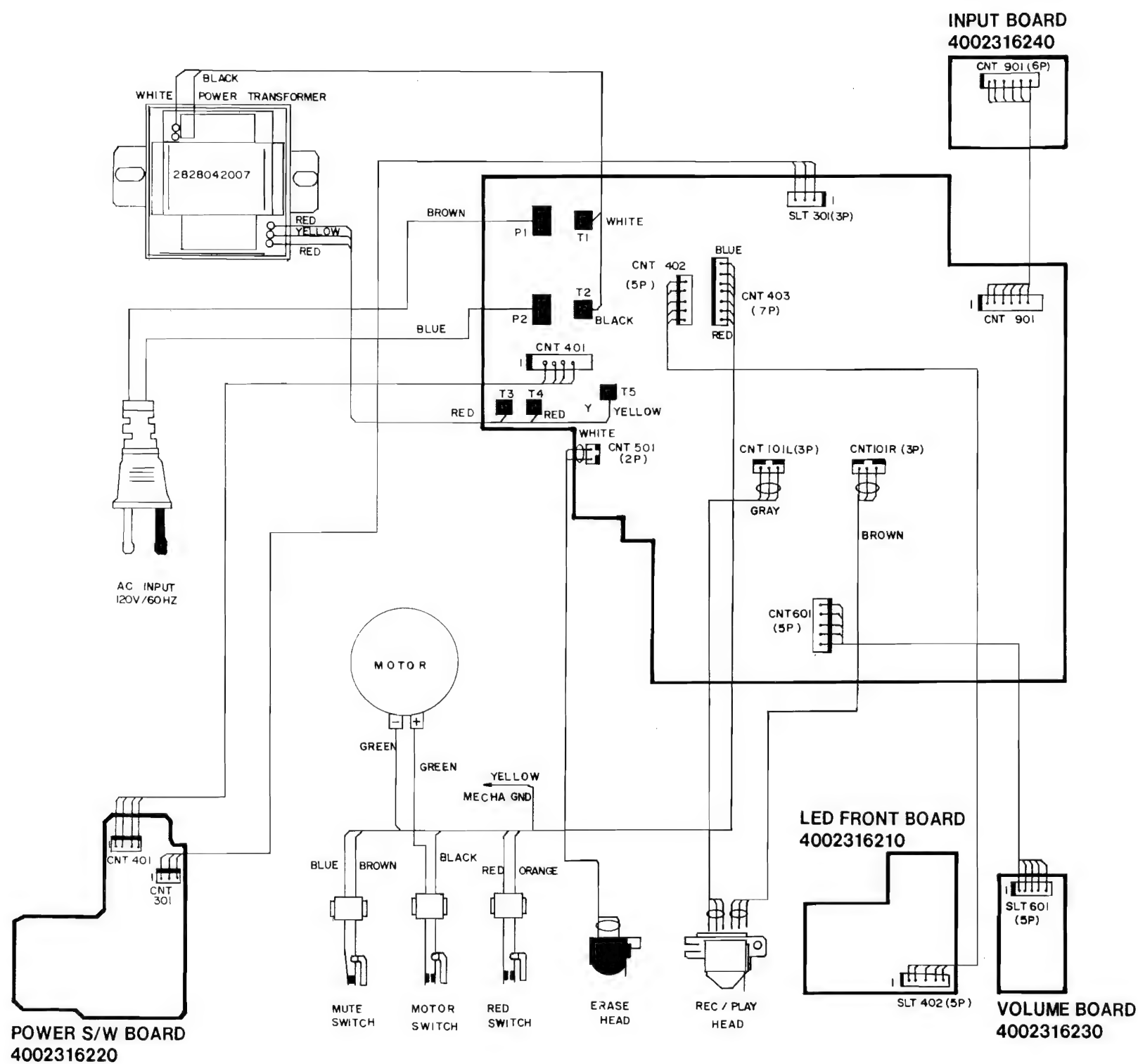




The image shows a printed circuit board (PCB) for a radio receiver. The board is populated with numerous electronic components, including resistors, capacitors, and integrated circuits. Key components labeled include a 40236300 Dolby BD chip, a 7812 voltage regulator, and a 7876 MPX filter. The board is densely packed with components and has a complex layout of traces and pads.



# Wiring Diagram



| VERSION | CONNECTION OF PRIMARY    |
|---------|--------------------------|
| B       | PART NO : 2828045801<br> |
| C.D.F   | PART NO 2828045201<br>   |
| E       | PART NO. 2828048201<br>  |
| K S     | PART NO 2828040603<br>   |

| VERSION | POWER TRANSFORMER |                     |
|---------|-------------------|---------------------|
|         | PART NO           | REMARK              |
| A       | 2828042007        | AC 120V 60 HZ       |
| C.D.F   | 2828045201        | AC 120V/220 V 50 HZ |
| E       | 2828048201        | AC 240V 50 HZ       |
| K.S     | 2828040603        | AC 100V/220V 60 HZ  |

| VERSION | FUSE PART NO  |               |
|---------|---------------|---------------|
|         | 0.5 A / 250 V | 0.2 A / 250 V |
| K. S    | 5508211630    | 5508211130    |

Mechanical Parts List (Deck Mechanism Ass'y)

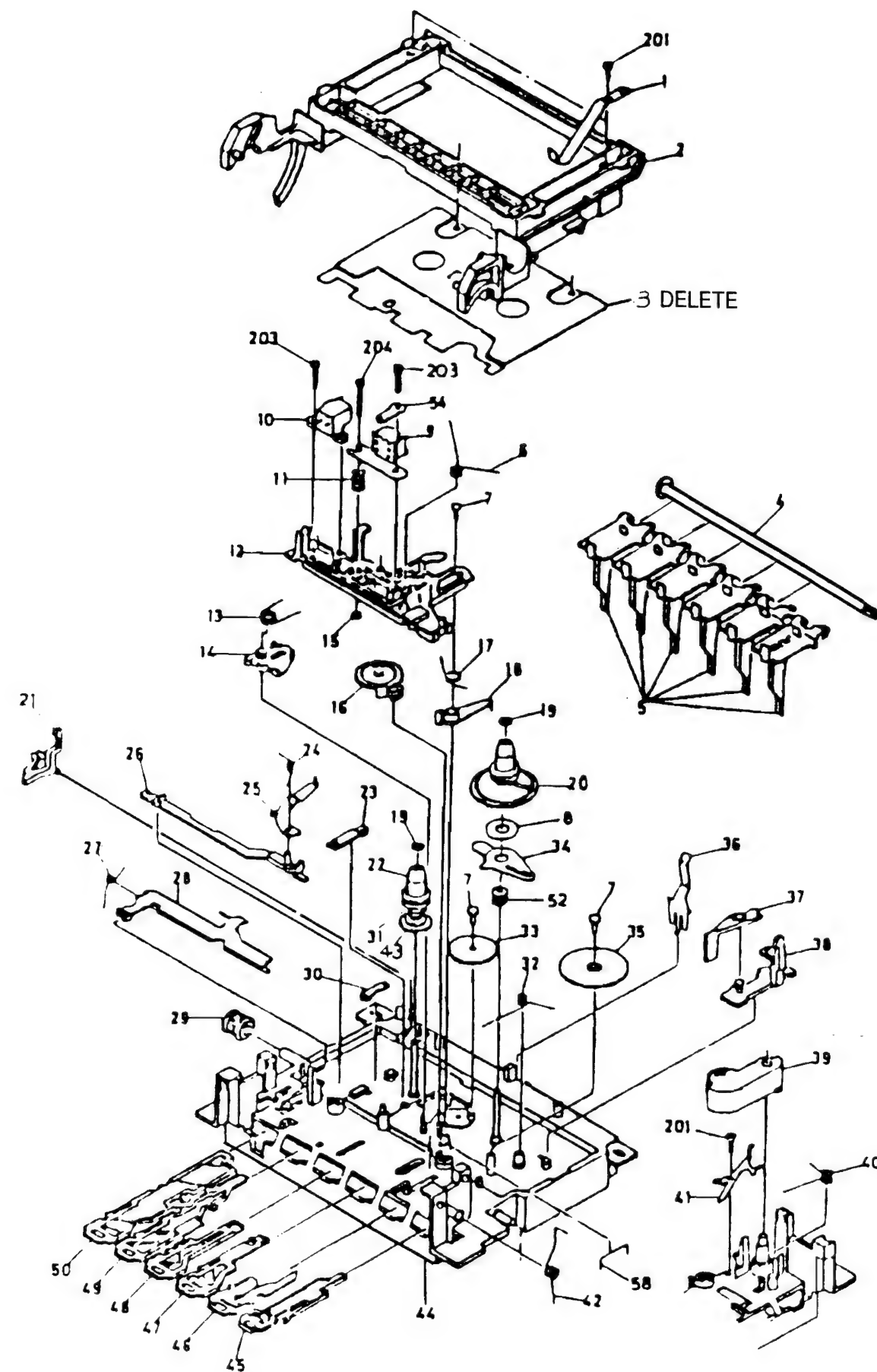
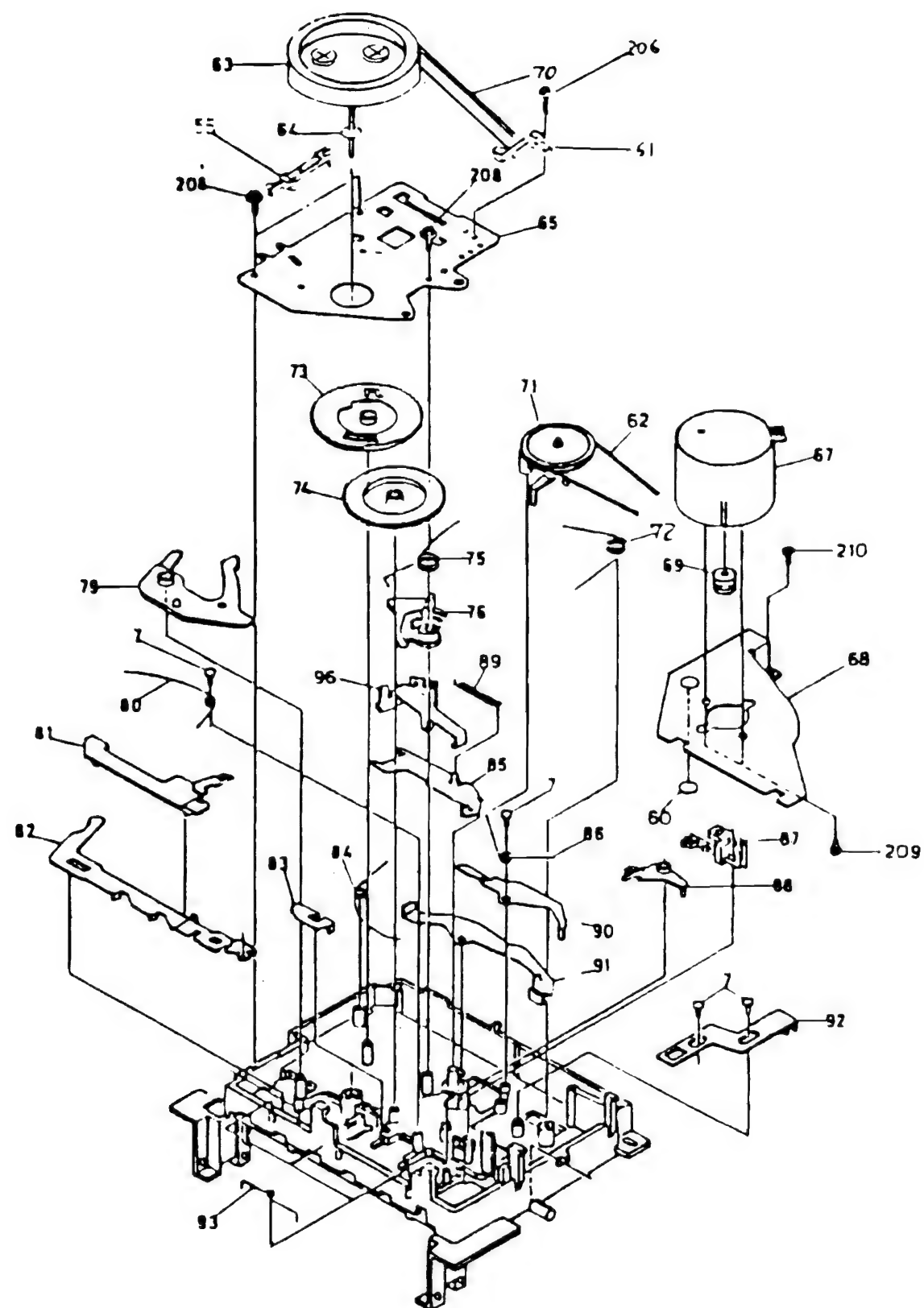
| No.   | Part No.   | Description    |                  | Q'ty |
|-------|------------|----------------|------------------|------|
|       |            | Parts Code     | Parts Name       |      |
| 1     | 5708901650 | PBE 14715      | Keep plate       | 2    |
| 2     | 5708901260 | PBC 1146       | C. Case          | 1    |
| 3     | .          | .              | Not used !       |      |
| 4     | 5708901420 | PBE 15901      | Button shaft     | 1    |
| 5     | 5708901430 | PBE 2960       | Button lever     | 6    |
| 6     | 5708901840 | PBE 6354       | Spring           | 1    |
| 7     | 5708901440 | PBE 14927      | Bush             | 7    |
| 8     | 5708901450 | PBE 16459      | Felt washer      | 1    |
| 9     | 5708902070 | 2453022        | R/P head         | 1    |
| 10    | 5708902080 | 8860103        | Erase head       | 1    |
| 11    | 5708902010 | PBE 13666      | C. spring        | 1    |
| 12    | 5708901270 | PBC 1145       | Head base        | 1    |
| 13    | 5708901910 | PBE 6508       | Spring           | 1    |
| 14    | 5708901460 | PBE15920       | F.R lever        | 1    |
| 15    | 5708906960 | PGNH22A20      | Nut              | 1    |
| 16    | 5708901470 | PBE03245       | P. idler ass'y   | 1    |
| 17    | 5708901850 | PBE 6384       | Spring           | 1    |
| 18    | 5708901480 | PBE 15577      | Riset lever      | 1    |
| 19    | 5708906950 | PGWM16X40020   | Washer           | 2    |
| 20    | 5708901490 | PBE 02161      | T.reel ass'y     | 1    |
| 21    | 5708901280 | PBD 1801       | Inter rock plate | 1    |
| 22    | 5708901290 | PBD 10612      | Reel cap         | 1    |
| 23    | 5708901300 | PBD 15574      | F.R unlock lever | 1    |
| 24    | 5708901860 | PBE 6557       | Spring           | 1    |
| 25    | 5708901500 | PBE 15576      | P unlock lever   | 1    |
| 26    | 5708901510 | PBE 1796       | PL lock plate    | 1    |
| 27    | 5708901870 | PBE 6349       | Spring           | 1    |
| 28    | 5708901310 | PBD 1797       | F.R lock plate   | 1    |
| 29    | 5708900550 | PBE 15524      | Gear             | 1    |
| 30    | 5708901530 | PBE 15578      | REC cover plate  | 1    |
| 31    | 5708902000 | PBE 6849       | C. spring        | 1    |
| 32    | 5708901880 | PBE 6350       | Spring           | 1    |
| 33    | 5708901540 | PBE 15585      | F idler gear     | 1    |
| 34    | 5708901550 | PBE 15589      | Senser cam       | 1    |
| 35    | 5708901560 | PBE 15582      | AS gear          | 1    |
| 36    | 5708901570 | PBE 15945      | Cassette holder  | 1    |
| 37    | 5708901580 | PBE 15565      | Eject cam        | 1    |
| 38    | 5708901320 | PBD 1805       | Latch lever      | 1    |
| 39    | 5708901590 | PBE 02164      | Pinch arm ass'y  | 1    |
| 40    | 5708901890 | PBE 6394       | Spring           | 1    |
| 41    | 5708901600 | PBE 15570      | Earth lug        | 1    |
| 42    | 5708901900 | PBE 6518       | Spring           | 1    |
| 43    | 5708901610 | PBE 17295      | S reel gear      | 1    |
| 44    | 5708901330 | PBD 0783       | Chassis ass'y    | 1    |
| 45    | 5708901620 | PBE 15557      | SE lever         | 1    |
| 46    | 5708901340 | PBD 1793       | Pause lever      | 1    |
| 47    | 5708901630 | PBE 15923      | FF lever         | 1    |
| 48    | 5708901640 | PBE 15924      | REW lever        | 1    |
| 49    | 5708901650 | PBE 15952      | PL lever B       | 1    |
| 50    | 5708901350 | PBD 1798       | REC lever        | 1    |
| 51/53 | .          | .              | Not used !       |      |
| 52    | 5708901920 | PBE 6552       | Spring           | 1    |
| 53    | 5708902520 | PBE 14710      | Earth lug        | 1    |
| 54    | 5708902160 | MSW 1598       | Leaf switch      | 1    |
| 56/57 | .          | .              | Not used !       |      |
| 58    | 5708901670 | PBE 15801      | Lock pin         | 1    |
| 59/66 | .          | .              | Not used !       |      |
| 60    | 5708901680 | PBE 15939      | Capstan support  | 1    |
| 61    | 5708902030 | HSN 135        | Leaf switch      | 1    |
| 62    | 5708902130 | PBE 5083       | Belt             | 1    |
| 63    | 5708901700 | PRE 03533      | Fly wheel ass'y  | 1    |
| 64    | 5708901980 | PGWP 21X040013 | Washer           | 1    |

Mechanical Parts List (Cabinet & Chassis)

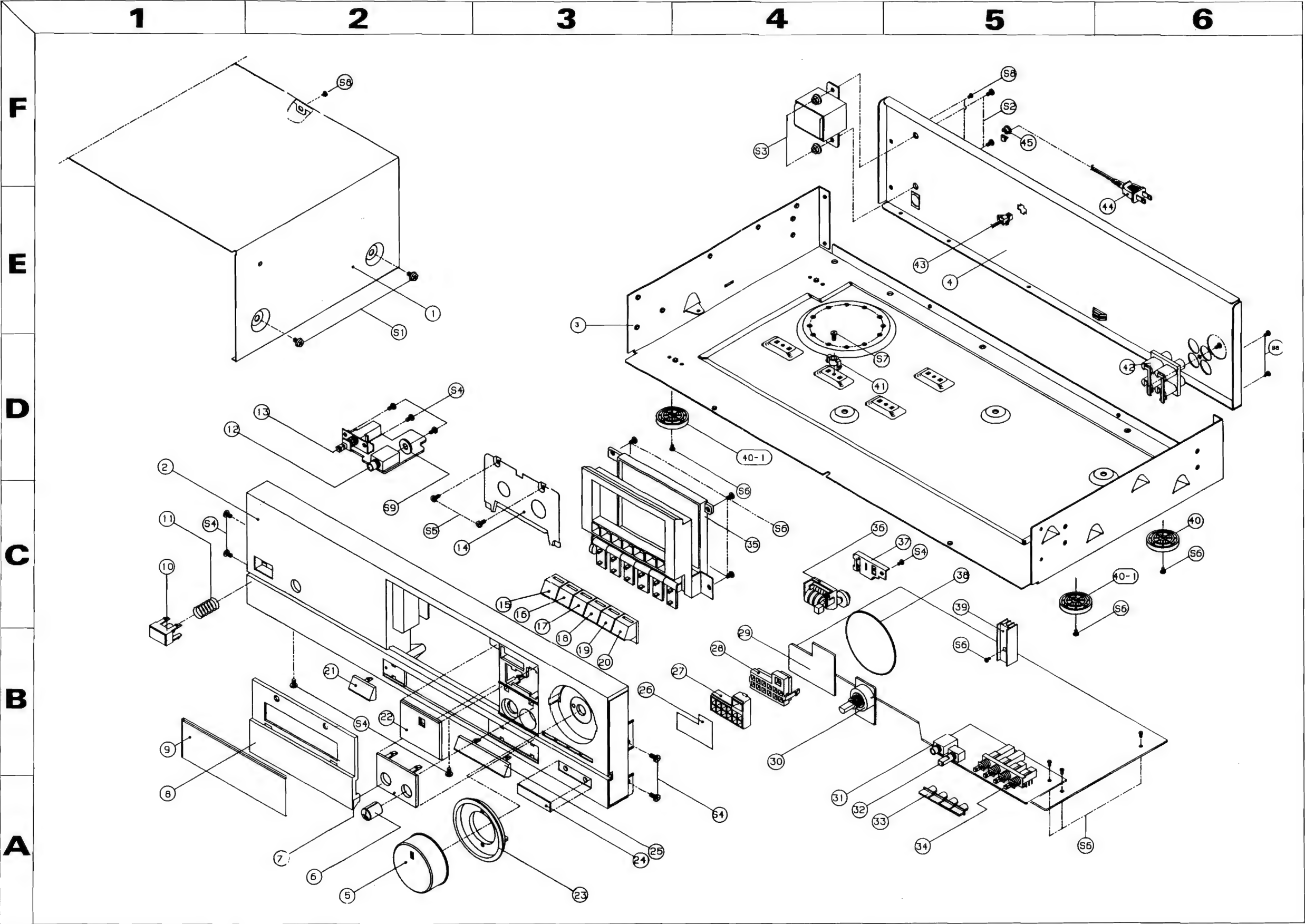
| No.    | Part No.     | Description                | Q'ty | Position | Remark   |
|--------|--------------|----------------------------|------|----------|----------|
|        |              |                            |      |          |          |
| 1      | 046122018411 | Cover Top, Black           | 1    | E2       |          |
| 2      | 048501012711 | Panel Front, Black         | 1    | C2       |          |
| 3      | 6121603920   | Chassis Main               | 1    | D5       |          |
| 4      | 046102025012 | Chassis Back, Black        | 1    | E5       | Domestic |
|        | 046102025022 | Chassis Back, Black        | 1    | E5       | A        |
|        | 046102025032 | Chassis Back, Black        | 1    | E5       | B        |
|        | 046102025042 | Chassis Back, Black        | 1    | E5       | C        |
|        | 046102025052 | Chassis Back, Black        | 1    | E5       | D        |
|        | 046102025062 | Chassis Back, Black        | 1    | E5       | E        |
|        | 046102025072 | Chassis Back, Black        | 1    | E5       | F        |
| 5      | 8545048210   | Knob-Main Power, Black     | 1    | B1       | Domestic |
|        | 048545048211 | Knob-Main Power, Black     | 1    | B1       | A        |
| 6      | 6555004380   | Spring w/Power Main        | 1    | C1       |          |
| 7      | 4438004010   | Phone Jack                 | 1    | D2       |          |
| 8      | 4628034310   | Switch Power, Main         | 1    | D2       |          |
| 9      | 048553007712 | Door Window                | 1    | B1       |          |
| 10     | 048563003511 | Door Deck                  | 1    | B2       |          |
| 11     | 048585005411 | Decoration Cover           | 1    | A2       |          |
| 12     | 048545049111 | Knob Rotary(B), Balance    | 1    | A2       |          |
| 13     | 8523009220   | Decoration Ring            | 1    | A3       |          |
| 14     | 048645009621 | Knob Rotary, Record Volume | 1    | A2       |          |
| 15     | 048535019021 | Badge                      | 1    | A3       | Domestic |
|        | 048535019011 | Badge, Sherwood            | 1    | A3       |          |
| 16     | 8543020310   | Button Cap(A)              | 1    | A3       |          |
| 17     | 048555019312 | LED Window                 | 1    | B2       |          |
| 18     | 8545060710   | Button Cap(B)              | 1    | B2       |          |
| 19     | 048683002411 | Cover Mechanism            | 1    | C3       |          |
| 20     | 048545059711 | Button Deck, Record        | 1    | C3       |          |
| 21     | 048545059712 | Button Deck, Play          | 1    | C3       |          |
| 22     | 048545059713 | Button Deck, Rewind        | 1    | C3       |          |
| 23     | 048545059714 | Button Deck, Fast Forward  | 1    | C3       |          |
| 24     | 048545059715 | Button Deck, Pause         | 1    | B3       |          |
| 25     | 048545059716 | Button Deck, Stop/Eject    | 1    | B3       |          |
| 26     | 5708005610   | Deck Mwcha, LF402CW-41     | 1    | C3       |          |
| 27     | 8535023910   | Diffuser                   | 1    | B4       |          |
| 28     | 046042001711 | LED Guide                  | 1    | B4       |          |
| 29     | 6042001810   | LED Holder                 | 1    | B4       |          |
| 30     | 4002316210   | PCB Ass'y-Front            | 1    | B4       |          |
| 31     | 3208055210   | VR Rotary, Record Volume   | 1    | B4       |          |
| 32     | 5318001710   | Counter                    | 1    | C4       |          |
| 33     | 6505080510   | Bracket Counter            | 1    | C4       |          |
| 34     | 7165000610   | Belt, Counter              | 1    | C4       |          |
| 35     | 7505201940   | Heatsink, Regulator TR     | 1    | B5       |          |
| 36     | 4438002910   | Mic Jack                   | 1    | B5       |          |
| 37     | 3208050710   | VR Rotary, Balance         | 1    | B5       |          |
| 38     | 8545061510   | Button Push, Dolby NR B/C  | 4    | A5       |          |
| 39     | 4628053910   | Switch Push, 4 Key         | 1    | A5       |          |
| 40     | 6125401810   | Bottom Cover               | 1    | B6       |          |
| 41     | 6528301010   | Fastener                   | 2    | D5       |          |
| 42     | 4438100410   | Jack RCA, 4P               | 1    | D6       |          |
| 43     | 6518000111   | Cord Stopper, Black        | 1    | F5       |          |
| 44     | 4308003910   | Cord AC Power, Black       | 1    | E6       |          |
| 52     | 7115002010   | Dial Roller                | 1    | C4       |          |
| 54     | 2828042007   | Transformer Main           | 1    | E3       |          |
| 55     | 046035101421 | Foot, Gold(Front)          | 2    | C6       |          |
| 56     | 6725002110   | Cushion Foot, Black        | 4    | C6       |          |
| 57     | 6035101420   | Foot, Black(Rear)          | 2    | C6       |          |
| Screws |              |                            |      |          |          |
| 45     | 8159440083   | WSAM 4×8ZNB                | 2    |          |          |
| 46     | 8209540011   | Nut Flange M4Y             | 2    |          |          |
| 47     | 8109230083   | #2BTC 3×8ZNB               | 4    |          |          |



# Exploded View (Deck Mechanism Ass'y)



**Exploded View (Cabinet & Chassis)**



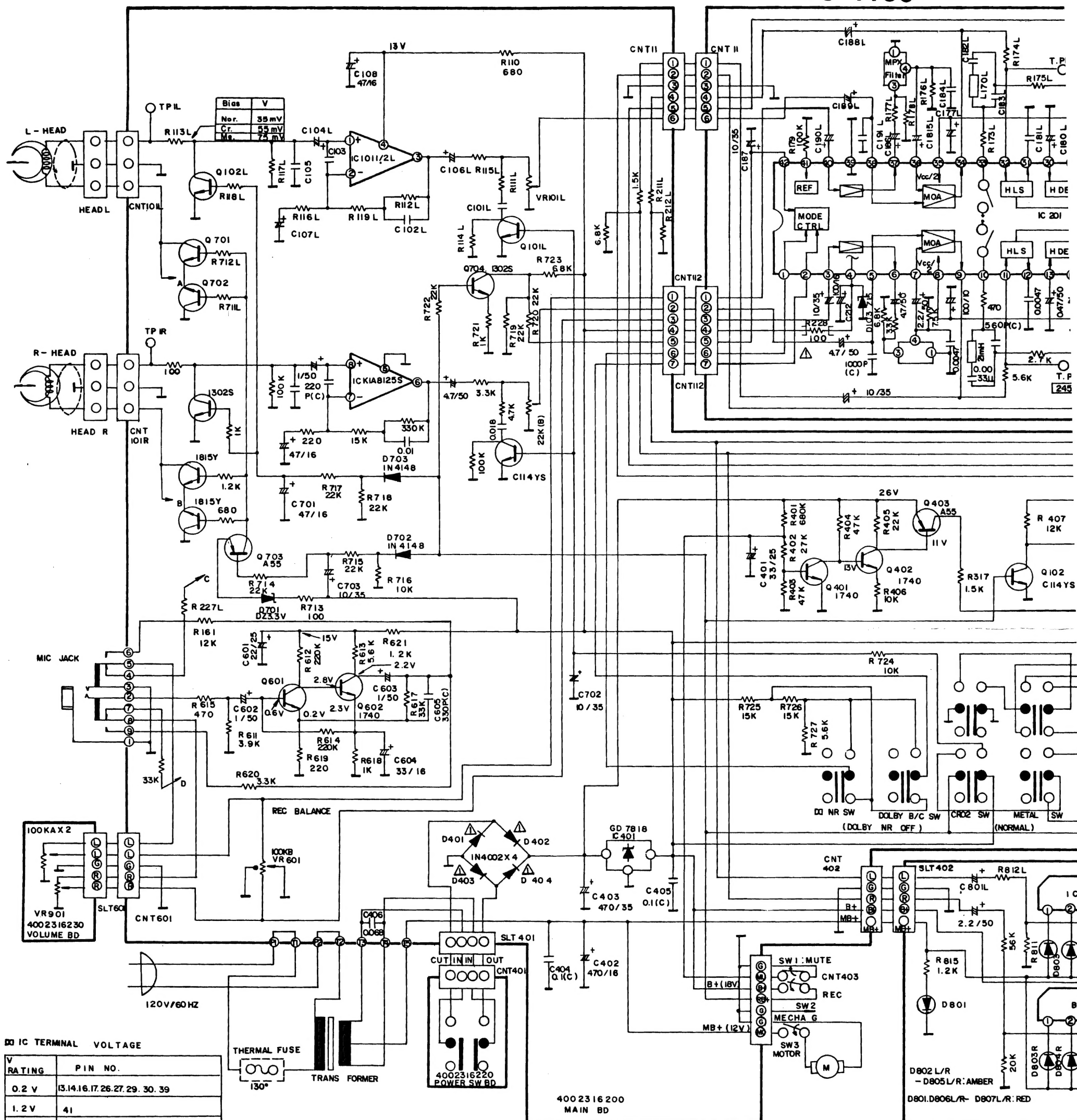
A

B

C

D

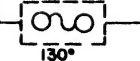
# Schematic Diagram DS-1150



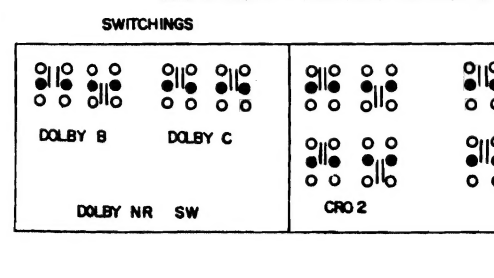
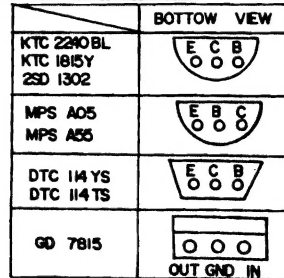
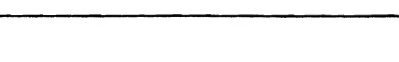
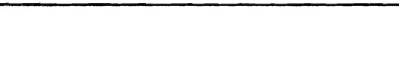
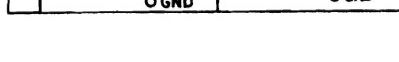
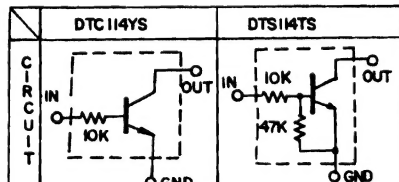
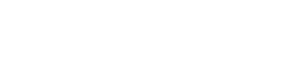
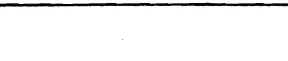
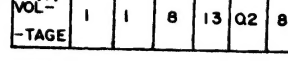
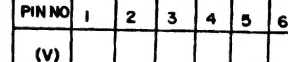
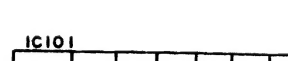
IC TERMINAL VOLTAGE

| V RATING | PIN NO.                    |
|----------|----------------------------|
| 0.2 V    | 13,14,16,17,26,27,29,30,39 |
| 1.2 V    | 41                         |
| 7.6 V    | 3,5,7,10,12,31,33,36,38,40 |
| 7.8 V    | 6,8,9,11,15,18,19,20,21    |
| 10 V     | 1,2 : DOLBY NR OFF         |
| 2.6 V    | 42 : REC                   |
| 1.5 V    | 12 : DOLBY NR ON           |
|          | 42 : PLAY                  |

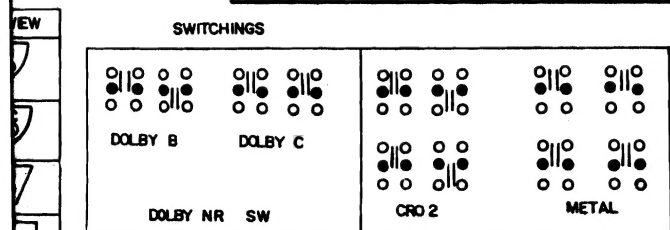
THERMAL FUSE





TRANS FORMER



**D** **E** **F** **G**



- Notes**
1. Resistance values are indicated in ohms unless otherwise specified ( $K=1,000$ ,  $M=1,000,000$ )
  2. Capacitance values are shown in microfarads unless otherwise noted ( $P=\text{micro-micro farads}$ .)
  3.  Delay level type (TCC-130, A, BEX)
- CAUTION** : Safety precautions to be followed during servicing
- 1) Since those parts marked with  are critical parts for safety use the one described in parts list.
  - 2) Before returning the receiver to the customer make appropriate leakage current or resistance measurements to determine that exposed parts are properly insulated from the supply circuit.

# Block Diagram

